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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,418	01/09/2006	Alan Lionel Hudd	ARC-141-582	6706
23117 7590 04/16/2010 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
LEE, DORIS L				
ART UNIT		PAPER NUMBER		
1796				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/530,418

Applicant(s)

HUDD ET AL.

Examiner

Doris L. Lee

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 11, 12, 17, 19-23 and 25 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11, 12, 17, 23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-506)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ ~~Notice of Informal Patent Application~~
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 16, 2010 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-6, 11-12, 17 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Johnson et al (WO 99/29787)** in view of **Wacker Silicones Corp, Booth 1105, Metal Finishing Volume 99, Issue 10, October 2001, Page 50.** (<http://www.sciencedirect.com/science/article/B6TX7-455X3NP-7P/1/b2b67ba0ddc24327127f1f8949ac36df>) with evidence provided by **Turgis et al (US 2004/0157959).**

Regarding claim 23, Johnson teaches a non-aqueous UV-curable (abstract) ink composition for inkjet printing comprising a colorant (Abstract), a UV-curable organic

diluent (Abstract) and a silicone derivative (page 13, last paragraph) which is used to reduce the surface tension of the ink, thus behaving like a surfactant. Johnson teaches that the surfactant is an acrylate modified polydimethylsiloxane (page 15, first paragraph).

Although Johnson teaches a UV-curable ink (Abstract) in which an acrylate modified polydimethylsiloxane derivative (page 15, first paragraph) is used as a surfactant, it fails to teach that the siloxane derivative is Addid 300.

Wacker Silicones Corp teaches that Addid 300 is an additive for a UV Curable system (Wacker Silicone Corp, Booth 1105 section). It is evidenced by Turgis that Addid 300 is a silicone product used to adjust the flow, surface tension and gloss of a cured printing ink ([0075]).

It is noted that Turgis does not antedate the filing date of the instant application. However, references cited to show a universal fact need not be available as prior art before applicant's filing date. Such facts include the characteristics and properties of a material or a scientific truism, see MPEP 2124.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the Addid 300 as taught by Wacker Silicone Corporation as the siloxane derivative in Johnson. This would be nothing more than using a known compound in a known environment to produce predictable results. KSR v. Teleflex, 550 U.S. ___, 82 USPQ2d 1385 (2007).

Regarding the limitations in 23, it is noted that since Addis 300 is the same composition as used in the present invention, it is clear that the composition would

inherently be a block copolymeric tetraacrylate-modified polydimethylsiloxane having fifteen dimethylsiloxane groups. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Regarding claims 1-4, modified Johnson teaches all the components of the claimed invention, therefore, it is therefore inherent that the prior art composition has the desired nozzle loss property and the desired hole to area ratio since such properties are evidently dependent upon the nature of the composition used. Case law holds that a material and its properties are inseparable. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Regarding claims 5 and 6, Johnson teaches that the silicone derivative is used in an amount from 0.1 to 0.6 wt % of the ink (page 14, line 6).

Regarding claims 11-12, modified Johnson teaches that the surfactant added is Addis 300 and Addis 300 is not further organo-modified nor is it polyether-modified.

Regarding claim 17, Johnson teaches an ink composition consisting essentially of:

- 0.01% to 50 % by weight of pigment (page 7, paragraph 4).
- 15 to 100 % of a dispersant system (based on the amount of pigment) (page 8, paragraph 2).
- UV-curable organic diluent which consists of
 - monofunctional (20 to 60 %, page 15, paragraph 2) and
 - difunctional and tri or higher functional material (5 – 30 % by weight, page 16, paragraph 2).

- It is noted that the sum of these 2 components make up the UV-curable organic diluent and therefore the total amount of organic diluent in the ink composition is (25-90 % which reads on the claimed limitation).
 - silicone derivative (surfactant) is used 0.1 to 0.6 wt % of the ink (page 14, line 6).
 - 3% to 15 % by weight of photo initiator (page 19, paragraph 2)
4. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Johnson et al (WO 99/29787)** in view of **Yamaguchi et al (WO 01/21717, please refer to US 2003/0040551 for English Language equivalent)** and **Wacker Silicones Corp, Booth 1105, Metal Finishing Volume 99, Issue 10, October 2001, Page 50.** (<http://www.sciencedirect.com/science/article/B6TX7-455X3NP-7P/1/b2b67ba0ddc24327127f1f8949ac36df>) with evidence provided by **Turgis et al (US 2004/0157959).**

Regarding claims 25, Johnson teaches a non-aqueous UV-curable ink composition (Abstract) for inkjet printing comprising a pigment (page 21, middle paragraph) such as carbon black (page 5, 3rd paragraph), a dispersant (page 21, middle paragraph) such as Solsperse 24000 (page 25, Table 1) which is a low molecular weight hyper dispersant, a dispersant synergist (page 21, middle paragraph) such as Solsperse 5000 (page 25, Table 1), a photo initiator (page 21, middle paragraph) and a diluent. Johnson teaches that the diluent is composed of mono-, di- tri- or higher functional material (page 8, last paragraph). Johnson teaches that the diacrylates include propoxylated neopentyl glycol and dipropylene glycol (page 10-11) as well as ethoxylated trimethylol propane triacrylates (page 11). Johnson also

teaches a silicone derivative (page 13, last paragraph) which is used to reduce the surface tension of the ink, thus behaving like a surfactant. Johnson teaches that the surfactant is an acrylate modified polydimethylsiloxane (page 15, first paragraph).

However, Johnson fails to teach a) the exact mixture of the reactive diluent .and b) the surfactant.

Regarding a) above, Yamaguchi teaches a UV curable ([0089]) printing ink vehicle ([0092]) which uses polymerizable media such as SR-9003 (propoxylated (2) neopentyl glycol diacrylate ([0072]), dipentaerythritol hexaacrylate ([0070]), dipropylene glycol diacrylate ([0070]), SR-499 (ethoxylated (6) trimethylol propane triacrylate) ([0072]), and SR-454 (ethoxylated (3) trimethylol propane triacrylate).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the components as taught by Yamaguchi as the mixture of reactive diluents of Johnson. One would have been motivated to do so in order to receive the expected benefit of increasing the film forming capability of the composition (Yamaguchi, [0068]). They are combinable because they are both concerned with the same field endeavor, namely UV curable inks with reactive media.

Regarding b) above, Johnson teaches a UV-curable ink (Abstract) in which an acrylate modified polydimethylsiloxane derivative (page 15, first paragraph) is used as a surfactant, it fails to teach that the siloxane derivative is Addid 300.

Wacker Silicones Corp teaches that Addid 300 is an additive for a UV Curable system (Wacker Silicone Corp, Booth 1105 section). It is evidenced by Turgis that

Addid 300 is a silicone product used to adjust the flow, surface tension and gloss of a cured printing ink ([0075]).

It is noted that Turgis does not antedate the filing date of the instant application. However, references cited to show a universal fact need not be available as prior art before applicant's filing date. Such facts include the characteristics and properties of a material or a scientific truism, see MPEP 2124.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the Addid 300 as taught by Wacker Silicone Corporation as the siloxane derivative in Johnson. This would be nothing more than using a known compound in a known environment to produce predictable results. *KSR v. Teleflex*, 550 U.S. ___, 82 USPQ2d 1385 (2007).

Regarding the limitations in claims 25, it is noted that since Addis 300 is the same composition as used in the present invention, it is clear that the composition would inherently be a tetraacrylate-modified polydimethylsiloxane having fifteen dimethylsiloxane groups and is not further organo-modified and not polyether-modified. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Response to Arguments

5. The 35 USC 112 2nd paragraph rejection set forth in paragraph 5 of the office action mailed on November 24, 2009 has been withdrawn in light of the applicant's amendment filed on February 16, 2010.

6. Applicant's arguments filed February 16, 2010 have been fully considered but they are not persuasive for the reasons set forth below:

7. **Applicant's argument:** The named ingredients are not disclosed in Yamaguchi as a combination to be used. They are merely disclosed as examples of suitable materials to include individually in a composition. Yamaguchi gives a large number of compounds with no direction for the particular combination.

Examiner's response: *It is acknowledged that Yamaguchi teaches a large number of polymerizable compounds. However, it is noted that the examiner uses only the teachings of the prior art of Johnson (which teaches that a mixture of these reactive diluents, including many of the reactive diluents of the presently claimed invention) and the teachings of Yamaguchi to arrive at the presently claimed invention. It is the examiner's position that the monomers listed in the prior art represent a finite number of choices and absent a showing of criticality, the combination of the reactive monomers is well within the ordinary skill of a person in the art.*

8. **Applicant's argument:** Applicant's maintain their argument for unexpected results and points to the data where the surfactant concentration is 0.3 wt%. Applicant's also question as to why the range of 0.01 to about 2 wt % should not also be accepted as showing unexpected results. The fact that Formulation D was within the scope of the application as originally filed and now no longer is within the scope of the claims does not imply that the practical result obtained is not surprising. The formulation C does not meet the limitations of dependent claim 4 is not relevant to the issue.

Examiner's response: *The examiner has reconsidered the data presented in the specification and the data presented is still not persuasive. Setting aside the arguments of Formulation C and D to clarify the examiner's position, it is noted that In order to show unexpected results, the applicant must present data that is commensurate with the scope of the claim. Claim 23 is very broad, it does not specify the amounts or the type of colorant or UV-curable organic diluents and Ink Formulation B and Ink Formulation C provide data for only two specific embodiments within the very broadly claimed ink composition, therefore no definitive conclusion can be drawn from applicants data over the entire range of the claim. Applicants then argue about claims 5 and claim 6 which specify the amount of surfactant and why those have not be considered to have unexpected results. Regarding claim 5 which gives a range of 0.01 to 2 wt % surfactant, in order to show unexpected or surprising results for this range, the applicant must show criticality for the claimed range and as such, needs to have data points below 0.01 wt % and above 2 wt % surfactant. It is noted that the applicant has inventive examples which show the amount of Addid 300 is 0.288 % and 0.3 wt % and a comparative example which contains no Addid, however, no data is shown at, for example 0.008 wt % or 2.1 wt % to show the criticality of the range. This same argument can be made fro claim 6. It is also noted that there is a question of whether the result is even unexpected at all. Johnson teaches that silicone derivative (page 13, last paragraph) is used reduce the surface tension of the ink, thus behaving like a surfactant. And it is known that Addid 300 is of this class of materials, so it seems not*

surprising that by reducing the surface tension of the ink, naturally, the clogging of the nozzles is reduced.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Doris L. Lee whose telephone number is (571)270-3872. The examiner can normally be reached on Monday - Thursday 7:30 am to 5 pm and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796